

NPDES Permit No NH0101311

**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
NEW ENGLAND REGION
ONE CONGRESS STREET
BOSTON, MASSACHUSETTS 02114-2023**

FACT SHEET

**DRAFT NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
PERMIT TO DISCHARGE TO WATERS OF THE UNITED STATES**

NPDES PERMIT NO.: NH0101311

PUBLIC NOTICE START/FINISH DATE:

NAME AND MAILING ADDRESS OF APPLICANT:

City of Dover
Wastewater Treatment Facility
288 Central Avenue
Dover, New Hampshire 03820

NAME AND ADDRESS OF FACILITY WHERE DISCHARGE OCCURS:

City of Dover
Wastewater Treatment Facility
484 Middle Road
Dover, New Hampshire 03820

RECEIVING WATER: Piscataqua River (Hydrologic Unit Code: 01060003)

CLASSIFICATION: B

I. Proposed Action, Type of Facility and Discharge Location.

The above named applicant has applied to the U.S. Environmental Protection Agency (“EPA”) for reissuance of its NPDES permit to discharge treated effluent into the designated receiving water. The facility collects and treats domestic, commercial, and industrial wastewaters. The wastewater treatment facility is designed as a conventional activated sludge secondary (biological) treatment plant that utilizes ultraviolet light for disinfection. This facility has a design flow of 4.7 million gallons per day (“mgd”) and discharges the treated effluent to the Piscataqua River.

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The Town's previous permit was issued on September 27, 2000. The expired permit (hereafter referred to as the "existing permit") has been administratively extended pursuant to 40 C.F.R. §122.6.

The location of the facility, Outfall 001, and receiving water are shown in Attachment A.

II. Description of Discharge.

A quantitative description of significant effluent parameters based on Discharge Monitoring Reports (DMRs) is shown in Attachment B. The data are from January 2003 through October 2005.

III. Limitations and Conditions.

Effluent limitations, monitoring requirements, and any implementation schedule (if required) are found in PART I of the draft NPDES permit.

IV. Permit Basis and Explanation of Effluent Limitation Derivation.

A. General Regulatory Background

The Clean Water Act (CWA) prohibits the discharge of pollutants to waters of the United States without a National Pollutant Discharge Elimination System (NPDES) permit unless such discharge is otherwise authorized by the CWA. The NPDES permit is the mechanism used to implement technology and water-quality based effluent limitations and other requirements including monitoring and reporting. The draft NPDES permit was developed in accordance with various statutory and regulatory requirements established pursuant to the CWA and any applicable State administrative rules. The regulations governing EPA's NPDES permit program are generally found in 40 C.F.R. Parts 122, 124, 125, and 136.

EPA is required to consider technology and water quality-based requirements as well as those requirements and limitations included in the existing permit when developing the effluent limits for the revised permit. Technology-based treatment requirements represent the minimum level of control that must be imposed under Sections 301(b) and 402 of the CWA.

EPA regulations require NPDES permits to contain effluent limits more stringent than technology-based limits where more stringent limits are necessary to maintain or achieve state or federal water quality standards. (See Section 301(b)(1)(C) of the CWA). A water-quality standard consists of three elements: 1) beneficial designated use or uses for a water body or a segment of a water body; 2) a numeric or narrative water-quality criteria sufficient to protect the assigned designated use(s); and 3) antidegradation requirements to ensure that once a use is attained it will not be eroded.

Receiving water requirements are established according to numerical and narrative standards

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adopted under state law for each stream classification. When using chemical-specific numeric criteria from the state's water quality standards to develop permit limits, both the acute and chronic aquatic life criteria, expressed in terms of maximum allowable in-stream pollutant concentration, are used. Acute aquatic life criteria are considered applicable to daily time periods (maximum daily limit) and chronic aquatic life criteria are considered applicable to monthly time periods (average monthly limit). Chemical specific limits are allowed under 40 C.F.R. §122.44(d)(1) and are implemented under 40 C.F.R. §122.45(d).

B. Introduction

The permit must limit any pollutant parameter (conventional, non-conventional, toxic, and whole effluent toxicity) that is or may be discharged at a level that causes or has "reasonable potential" to cause or contribute to an excursion above any water quality criterion, see 40 C.F.R. §122.44(d)(1)(i). An excursion occurs if the projected or actual in-stream concentration exceeds the applicable criterion.

Reasonable Potential

In determining reasonable potential, EPA considers: 1) existing controls on point and non-point sources of pollution; 2) pollutant concentration and variability in the effluent and receiving water as determined from the permit's reissuance application, DMRs, and State and Federal Water Quality Reports; 3) sensitivity of the species to toxicity testing; 4) the statistical approach outlined in *Technical Support Document for Water Quality-Based Toxics Control*, March 1991, EPA/502/2-90-001 in Section 3; and, where appropriate, 5) dilution of the effluent in the receiving water. In accordance with the New Hampshire statutes and administrative rules [RSA 485-A:8, VI, Env-Ws 1705], available dilution is based on a known or estimated value of the lowest average annual flow which occurs for seven (7) consecutive days with a recurrence interval of once in ten (10) years (7Q10) for aquatic life or the mean annual flow for human health (carcinogens only) in the receiving water at the point just upstream of the outfall. Furthermore, 10 percent of the assimilative capacity of the receiving water is held in reserve for future needs in accordance with New Hampshire's Surface Water Quality Regulations, Env-Ws 1705.01.

Anti-Backsliding

The permit may not be renewed, reissued or modified with less stringent limitations or conditions than those conditions in the previous permit unless in compliance with the anti-backsliding requirements of the CWA (See Sections 402(o) and 303(d)(4) of the CWA and 40 C.F.R. §122.44(1)(1 and 2). EPA's anti-backsliding provisions prohibit the relaxation of permit limits, standards, and conditions unless certain conditions are met.

State Certification

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The CWA requires that EPA obtain state certification that all water quality standards will be satisfied. The permit must conform to the conditions established pursuant to a state certification under Section 401 of the CWA (40 C.F.R. §124.53 and §124.55). EPA regulations pertaining to permit limits based upon water quality standards and state requirements are contained in 40 C.F.R. §122.44(d).

The conditions of the permit reflect the goal of the CWA and EPA to achieve and then to maintain water quality standards. To protect the existing quality of receiving waters within the state, the NHDES adopted anti-degradation requirements in their December 10, 1999, Surface Water Quality Regulations (Env-Ws 1708).

C. Flow

The Dover Wastewater Treatment Facility has a design flow rate of 4.7 mgd. This flow rate is used to calculate mass limits for Biochemical Oxygen Demand (BOD₅), Total Suspended Solids, and Available Dilution as discussed below. If the effluent flow rate exceeds 80 percent of the 4.7 mgd design flow (3.76 mgd) for a period of 3 consecutive months then the permittee must notify EPA and the NHDES-WD and implement a program to maintain satisfactory treatment levels.

D. Conventional Pollutants

Biochemical Oxygen Demand (BOD₅) and Total Suspended Solids

Average monthly and average weekly concentration (i.e. mg/l) effluent limits in the draft permit for Biochemical Oxygen Demand (BOD₅) and Total Suspended Solids (TSS) are based on requirements of Section 301(b)(1)(B) of the CWA as defined in 40 C.F.R. §133.102. The average monthly, average weekly and maximum daily concentration limits for BOD₅ and TSS are also based upon limits in the existing permit in accordance with the anti-backsliding requirement found in 40 C.F.R. §122.44.

The draft permit also contains average monthly, average weekly, and maximum daily mass (i.e. lbs/day) for BOD₅ and TSS. Mass limits are incorporated into the permit based on 40 C.F.R. §122.45(f). These mass limits were calculated using the appropriate concentration limits and the design flow of the facility. Refer to Attachment C for the calculation of these limits.

pH

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Pursuant to NH RSA 485-A:8.II, Class B waters shall have a pH range of 6.5 to 8.0 except when due to natural causes. However, language under State Permit Conditions (PART I.D.1.a.) allows for a change in the pH limit under certain conditions. A change would be considered if the applicant can demonstrate to the satisfaction of NHDES-WD that the pH standard of the receiving water will be protected when the discharge is outside the permitted range, then the applicant or NHDES-WD may request (in writing) that the permit limits be modified by EPA to incorporate the results of the demonstration. Anticipating the situation where NHDES-WD grants a formal approval changing the pH limit to outside 6.5 to 8.0 Standard Units (S.U.), EPA has added a provision to the draft permit (see SPECIAL CONDITIONS section). That provision will allow EPA to change the pH limit using a certified letter approach. This change will be allowed only if it is demonstrated that the revised pH limit range does not alter the naturally occurring receiving water pH. However, the pH limit range cannot be less restrictive than 6.0 to 9.0 S.U. found in the applicable National Effluent Limitation Guideline (Secondary Treatment Regulations in 40 C.F.R. Part 133) for the facility.

Fecal Coliform and Enterococci Bacteria

Applicable criteria for fecal coliform and enterococci bacteria are found in NH RSA 485-A:8.V. This criteria states “Tidal waters utilized for swimming purposes shall contain not more than either a geometric mean based on at least 3 samples obtained over a 60-day period of 35 enterococci per 100 milliliters, or 104 enterococci per 100 milliliters in any one sample, unless naturally occurring.” Further, the criteria states that, “those tidal waters used for growing or taking of shellfish for human consumption shall, in addition to the forgoing requirements, be in accordance with the criteria recommended under the National Shellfish Program Manual of Operation, United States Department of Food and Drug Administration.” The Shellfish Program Manual includes the criteria of 14 fecal coliform per 100 milliliters.

The criteria have been incorporated as end of pipe effluent limitations (i.e no dilution) in accordance with water quality standards (see NH Code of Administrative Rules, Part Env-Ws 1703.06)

E. Non-Conventional and Toxic Pollutants

Water quality based limits for specific toxic pollutants such as chlorine, ammonia, and copper are determined from numeric chemical specific criteria derived from extensive scientific studies. The EPA has summarized and published specific toxic pollutants and their associated toxicity criteria in *Quality Criteria for Water*, 1986, EPA440/5-86-001 as amended, commonly known as the federal “Gold Book”. Each pollutant generally includes an acute aquatic life criteria to protect against short term effects, such as death, and a chronic aquatic life criteria to protect against long term effects, such as poor reproduction or impaired growth. New Hampshire

adopted these “Gold Book” criteria, with certain exceptions, and included them as part of the State’s Surface Water Quality Regulations adopted on December 10, 1999. EPA uses these pollutant specific criteria along with available dilution in the receiving water to determine

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pollutant specific draft permit limits.

Available Dilution

The existing permit was based upon a dilution ratio of 78:1. However, since issuance of the existing permit the permittee has made improvements to the outfall. These improvements involve the installation of pinch valves on the ports of the diffuser at the end of the outfall. Using these improvements to the outfall, the NHDES-WD modeled the discharge using the Cornell Mixing Zone Expert System (CORMIX) and determined the dilution to be 107.6:1. However, a dilution of 100:1 was used for the draft permit since this is the maximum dilution allowed by the NHDES for marine discharges. This change in the dilution ratio has not resulted in any changes to the effluent limits in the draft permit.

Total Residual Chlorine

The Dover Wastewater Treatment Facility utilizes ultraviolet (UV) disinfection in its wastewater treatment process. A chlorination system has been retained for use in the event of failure of the UV system. Accordingly, the permit includes an effluent limit and monitoring requirements for TRC, but monitoring is required only when the chlorine is being added to the discharge. The permit limits are based upon chlorine marine acute and chronic criteria of 0.013 mg/l and 0.0075 mg/l, respectively, which are found in NH RSA Env-Ws 1703.21. Using these criteria and the available dilution the monthly average limit is 0.75 mg/l ($100 * 0.0075 \text{ mg/l}$) and the maximum daily limit is 1.0 mg/l based upon best professional judgment.

F. Whole Effluent Toxicity

EPA's **Technical Support Document for Water Quality Based Toxics Control**, EPA/505/2-90-001, March 1991, recommends using an "integrated strategy" containing both pollutant (chemical) specific approaches and whole effluent (biological) toxicity approaches to control toxic pollutants in effluent discharges from entering waters of the U.S. EPA-New England adopted this "integrated strategy" on July 1, 1991, for used in permit development and issuance. These approaches are designed to protect aquatic life and human health. Pollutant specific approaches such as those in the Gold Book and State Regulations address individual chemicals, whereas whole effluent toxicity (WET) approaches evaluate interactions between pollutants thus rendering an "overall" or "aggregate" toxicity assessment of the effluent. Furthermore, WET measures the "additive" and/or "antagonistic" effects of individual chemical pollutants which pollutant specific approaches do not, thus the need for both approaches. In addition, the presence of an unknown toxic pollutant can be discovered and addressed through this process.

Section 101(a)(3) of the CWA specifically prohibits the discharge of toxic pollutants in toxic amounts and New Hampshire law states that, "all waters shall be free from toxic substances or chemical constituents in concentrations or combination that injure or are inimical to plants, animals, humans, or aquatic life;" (NH RSA 485-A:8, VI and the NH Code of Administrative

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Rules, PART Env-Ws 1703.21). The federal NPDES regulations at 40 CFR §122.44(d)(1)(v) require whole effluent toxicity limits in a permit when a discharge has a “reasonable potential” to cause or contribute to an excursion above the State’s narrative criteria for toxicity. Inclusion of the whole effluent toxicity limit in the draft permit will demonstrate the compliance with narrative water quality criteria of “no toxics in toxics amounts” found in both the CWA and State of New Hampshire regulations.

The current policy of EPA New England is to require toxicity testing in all municipal permits. The type of whole effluent toxicity test (acute and/or chronic) and effluent limitation (LC50 and/or C-NOEC) are based on available dilution. The effluent limitation for toxicity testing in the draft permit is based upon the limitation in the existing permit in accordance with antibacksliding provisions found in 40 C.F.R. 122.44(1). Therefore, the draft permit contains a toxicity limit of an LC50 of 100%. The LC50 is defined as the percentage of effluent that would be lethal to 50% of the test organisms during an exposure of 48 hours. Therefore, the permit limit of 100% means that a sample of 100% effluent shall cause no greater than 50% mortality to the test organisms. Toxicity testing shall be performed using the mysid shrimp (*Mysidopsis bahia*) and inland silverside (*Menidia beryllina*) and testing shall be performed in the third quarter of each year (i.e. July, August, September) and the results shall be submitted to EPA and the NHDES-WD by October 15.

If the WET limit is violated, EPA and NHDES may seek to increase monitoring frequency and testing requirements. The permit may also be modified, or alternatively revoked and reissued, to incorporate additional toxicity testing requirements or chemical specific limits. These actions will be taken if the Regional Administrator determines the NH standards are not adequately enforced and users of the receiving water are not adequately protected during the remaining life of the permit. Results of these toxicity tests are considered “new information not available at the permit development”, therefore, the permitting authority is allowed to use said information to modify and issued permit under authority in 40 C.F.R. §122.62(a)(2).

G. Pretreatment

The permittee is required to administer a pretreatment program based on the authority granted under 40 C.F.R. §122.44(j), 40 C.F.R. Part 403, and Section 307 of the Clean Water Act. The permittee’s pretreatment program received EPA approval on July 17, 1990 and, as a result, appropriate pretreatment program requirements were incorporated into the previous permit which were consistent with that approval and federal pretreatment regulations in effect when the permit was issued.

Periodically, the federal pretreatment regulations in 40 C.F.R. Part 403 are amended. These amendments established new requirements for implementation of pretreatment programs. Upon reissuance of this NPDES permit, the permittee is obligated to modify its pretreatment program to be consistent with current federal regulations. Those activities that the permittee must address include, but are not limited to, the following: 1) develop and enforce EPA approved specific

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effluent limits (technically-based local limits); 2) revise the local sewer-use ordinance or regulation, as appropriate, to be consistent with federal regulations; 3) develop and enforcement response plan; 4) implement a slug control evaluation program; 5) track significant noncompliance for industrial users; and 6) establish a definition of and track significant industrial users. These requirements are necessary to ensure continued compliance with the POTW's NPDES permit and its sludge use or disposal practices.

In addition to the requirements described above, the draft permit requires the permittee to submit to EPA in writing, within 180 days of the permit's effective date, a description of proposed changes to the permittee's pretreatment program deemed necessary to assure conformity with current federal pretreatment regulations. These requirements are included in the draft permit to ensure that the pretreatment program is consistent and up to date with all pretreatment requirements in effect. Lastly, the permittee must continue to submit, annually on February 15th, a pretreatment report detailing the activities of the program for the twelve month period ending 60 days prior to the due date.

H. Sludge

Section 405(d) of the CWA requires that EPA develop technical standards regulating the use and disposal of sewage sludge. These regulations were signed on November 25, 1992, published in the Federal Register on February 19, 1993, and became effective on March 22, 1993. Domestic sludge which is land applied, disposed of in a surface disposal unit, or fired in a sewage sludge incinerator are subject to Part 503 technical standards. Part 503 regulations have a self implementing provision, however, the CWA requires implementation through permits. Domestic sludge which is disposed of in a municipal solid waste landfill is in compliance with Part 503 regulations provided that the sludge meets the quality criteria of the landfill and the landfill meets the requirements of 40 C.F.R. Part 258.

The draft permit requires that sewage sludge use and disposal practices meet Section 405(d) Technical Standards of the CWA. In addition, the EPA Region I – NPDES Permit Sludge Compliance Guidance document dated November 4, 1999 is included with the draft permit for use by the permittee in determining their appropriate sludge conditions for their chosen method of sludge disposal. The permittee is required to submit to EPA and to NHDES-WD annually, by February 19th, the various sludge reporting requirements as specified in the guidance document for the chosen method of sludge disposal.

Sludge generated from the Dover Wastewater Facility is composted on-site. The facility generates approximately 2747 dry metric tons of sludge per year.

I. Essential Fish Habitat and Endangered Species

Essential Fish Habitat

The Magnuson-Stevens Fishery Conservation and Management Act, as amended by the Sustainable Fisheries Act of 1996 (Public Law 104267), established a new requirement to describe and identify (designate) “essential fish habitat” (EFH) in each federal fishery management plan. Only species managed under a federal fishery management plan are covered. Fishery Management Councils determine which area will be designated as EFH. The Councils have prepared written descriptions and maps of EFH, and include them in fishery management plans or their amendments. EFH designations for New England were approved by the Secretary of Commerce on March 3, 1999.

The 1996 Sustainable Fisheries Act broadly defined EFH as “waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity.” Waters include aquatic areas and their associated physical, chemical, and biological properties. Substrate includes sediment, hard bottom, and structures underlying the waters. Necessary means the habitat required to support a sustainable fishery and the managed species’ contribution to a healthy ecosystem. Spawning, breeding, feeding, or growth to maturity covers all habitat types utilized by a species throughout its life cycle. Adversely affect means any impact which reduces the quality and/or quantity of EFH. Adverse impacts may include direct (i.e. contamination, physical disruption), indirect (i.e. loss of prey), site specific or habitat wide impacts including individual, cumulative, or synergistic consequences of actions.

According to the Guide to Essential Fish Habitat Designations in the Northeastern United States; Volume I: Maine and New Hampshire, March 1999, the Piscataqua River has been designated as EFH for the species listed in Attachment D.

EPA has concluded that the limits and conditions contained in this draft permit minimize adverse effects to EFH for the following reasons:

- The dilution factor for the facility is 100;
- The facility uses ultraviolet light for disinfection however in the event that this system fails the permit contains water quality based chlorine limits that are protective of aquatic organisms;
- The permit requires once per year toxicity testing using mysid shrimp and inland silversides to ensure that the discharge does not present toxicity problems;
- The permit prohibits the discharge to cause a violation of state water quality standards.

EPA believes the draft permit adequately protects EFH and therefore additional mitigation is not warranted. NMFS will be notified and an EFH consultation will be reinitiated if adverse impacts to EFH are detected as a result of this permit action or if new information is received that changes the basis for these conclusions.

Endangered Species

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The Endangered Species Act (16 U.S.C. 1451 et seq), Section 7, requires the EPA to ensure, in consultation with the U.S. Fish and Wildlife Service (USFWS) and/or NMFS, as appropriate, that any action authorized by EPA is not likely to jeopardize the continued existence of any endangered or threatened species, or adversely affect its critical habitat.

USFWS and NMFS were both contacted to determine whether or not threatened and/or endangered species are present in the Piscataqua River. NMFS stated that they have no species of concern in this area and USFWS stated that the only species present during part of the year are wintering bald eagles.

V. Antidegradation.

This draft permit is being reissued with limitations that are as stringent as those in the existing permit and there is no change in the outfall location. The State of New Hampshire has indicated that there is no lowering of water quality and no loss of existing water uses and that no additional antidegradation review is warranted at this time.

VI. State Certification Requirements.

EPA may not issue a permit unless the State Water Pollution Control Agency with jurisdiction over the receiving water(s) either certifies that the effluent limitations and/or conditions contained in the permit are stringent enough to assure, among other things, that the discharge will not cause the receiving water to violation NH standards or waives its right to certify as set forth in 40 C.F.R. §124.53.

Upon public noticing of the draft permit, EPA is formally requesting that the State's certifying authority make a written determination concerning certification. The State will be deemed to have waived its right to certify unless certification is received within 60 days of receipt of this request.

The NHDES-WD, Wastewater Engineering Bureau is the certifying authority. EPA has discussed this draft permit with the staff of the Wastewater Engineering Bureau and expects that the draft permit will be certified. Regulations governing state certification are set forth in 40 C.F.R. §§ 124.53 and 124.55.

The State's certification should include the specific conditions necessary to assure compliance with applicable provisions of the CWA, Sections 208(e), 301, 302, 303, 306, and 307 and with appropriate requirements of State law. In addition, the State should provide a statement of the extent to which each condition of the draft permit can be made less stringent without violating the requirements of State law. Since the State's certification is provided prior to permit issuance, any failure by the State to provide this statement waives the State's right to certify or object to any less stringent condition. These less stringent conditions may be established by EPA during the permit issuance process based on information received following the public notice of the draft permit. If

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the State believes that any conditions more stringent than those contained in the draft permit are necessary to meet the requirements of either the CWA or State law, the State should include such conditions and, in each case, cite the CWA or State law reference upon which that condition is based. Failure to provide such a citation waives the right to certify as to that condition.

Reviews and appeals of limitations and conditions attributable to State Certification shall be made through the applicable procedures of the State and may not be made through the applicable procedures set forth in 40 C.F.R. Part 124.

VII. Comment Period, Hearing Requests, and Procedures for Final Decisions.

All persons, including applicants, who believe any condition of the draft permit is inappropriate must raise all issues and submit all available arguments and all supporting material for their arguments in full by the close of the public comment period to:

Dan Arsenault
U.S. Environmental Protection Agency
One Congress Street
Suite 1100 (Mail Code CMP)
Boston, Massachusetts 02114-2023
Telephone: (617) 918-1562
Fax: ((617) 918-1505

Any person, prior to such date, may submit a request in writing for a public hearing to consider the draft permit to EPA and the State Agency. Such Requests shall state the nature of the issue proposed to be raised at the hearing. A public hearing may be held after at least thirty (30) days public notice whenever the Regional Administrator finds that response to this notice indicates significant public interest. In reaching a final decision on the draft permit, the Regional Administrator will respond to all significant comments and make these responses available to the public at EPA's Boston office.

Following the close of the comment period, and after a public hearing (if applicable), the Regional Administrator will issue a final permit decision and forward a copy of the final decision to the applicant and each person who has submitted written comments or requested notice. Within 30 days following the notice of the final permit decision, any interested person may submit a request for a

formal hearing to reconsider or contest the final decision. Requests for a formal hearing must satisfy the requirement of 40 C.F.R. §124.74.

Information concerning the draft permit may be obtained between the hours of 9:00 am and 5:00 pm, Monday through Friday, excluding holidays.

Linda M. Murphy, Director

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Date

Office of Ecosystem Protection

U.S. Environmental Protection Agency

ATTACHMENT A

DOVER WASTEWATER FACILITY LOCATION



* Aerial photo taken April 11, 1998. Photo obtained through www.terraserer.microsoft.com.

ATTACHMENT B**SUMMARY OF EFFLUENT CHARACTERISTICS AT OUTFALL 001**

The following effluent characteristics were derived from analysis of discharge monitoring data collected from Outfall 001 from January 2003 through October 2005. All data taken from the monthly Discharge Monitoring Reports as retrieved from EPA's Permit Compliance System (PCS) data base. These effluent values characterize the treated wastewater discharged from the Dover Wastewater Treatment Facility.

Parameter	Average of Monthly Averages	Range of Monthly Averages	Maximum Daily¹
BOD₅ (mg/l)	12.1	5.5 – 24.9	44.2, 43.5, 32.9
BOD₅ (% Removal)	92.6	84.2 – 96.7	84.2, 87.5, 88.9 ²
TSS (mg/l)	9.2	3.9 – 22.9	43.3, 32.7, 32.5
TSS (% Removal)	94.9	85.4 - 98	85.4, 87.5, 88.9 ²
Flow (mgd)	2.96	1.978 – 4.773	10.851, 9.921, 9.056
Fecal Coliform (Colonies/100 ml)	3.15	0 – 33.21	1600
pH (Standard Units)	---	6.17 – 7.59 ³	---
LC50 <i>Mysidopsis bahia</i> (% Effluent)	---	---	100, 100
LC50 <i>Menidia beryllina</i> (% Effluent)	---	---	91.9, 100
Ammonia (mg/l)	---	---	23.0, 9.5
Nickel (mg/l)	---	---	0.007, 0.004
Zinc (mg/l)	---	---	0.095, 0.055
Aluminum (mg/l)	---	---	0.04, 0.02
Cadmium (mg/l)	---	---	<0.001
Lead (mg/l)	---	---	0.012, 0.003
Chromium (mg/l)	---	---	0.002, 0.001
Copper (mg/l)	---	---	0.012, 0.01

1. More than one value represents the second and third highest values.
2. Minimums of average monthly values.
3. Numbers listed are the minimum and maximum daily readings.

ATTACHMENT C

BOD AND TSS MASS LIMIT CALCUATIONS

Concentration Limits for BOD₅ and TSS: Monthly Average = 30 mg/l
 Weekly Average = 45 mg/l
 Daily Maximum = 50 mg/l

Plant Design Flow = 4.7 mgd = 4,700,000 g/d

Average Monthly Mass Limit:

$$(30 \text{ mg/l})(4,700,000 \text{ g/d})(1 \text{ gram}/1000 \text{ mg})(1 \text{ lb}/ 454 \text{ gram})(3.785 \text{ l/g}) = 1176 \text{ lb/d}$$

Average Weekly Mass Limit:

$$(45 \text{ mg/l})(4,700,000 \text{ g/d})(1 \text{ gram}/1000 \text{ mg})(1 \text{ lb}/ 454 \text{ gram})(3.785 \text{ l/g}) = 1764 \text{ lb/d}$$

Maximum Daily Limit:

$$(50 \text{ mg/l})(4,700,000 \text{ g/d})(1 \text{ gram}/1000 \text{ mg})(1 \text{ lb}/ 454 \text{ gram})(3.785 \text{ l/g}) = 1960 \text{ lb/d}$$

ATTACHMENT D

EFH DESIGNATIONS FOR THE PISCATAQUA RIVER

Species	Eggs	Larvae	Juveniles	Adults	Spawning Adults
Atlantic salmon (<i>Salmo salar</i>)			F,M		
Atlantic cod (<i>Gadus morhua</i>)	S	S			
haddock (<i>Meanogrammus aeglefinus</i>)	S	S			
pollack (<i>Pollachius virens</i>)	S	S	S		
red hake (<i>Urophycis chuss</i>)			S	S	
white hake (<i>Urophycis tenuis</i>)	S		S	S	
redfish (<i>Sebastes fasciatus</i>)	n/a				
winter flounder (<i>Pleuronectes americanus</i>)	M,S	M,S	M,S	M,S	M,S
yellowtail flounder (<i>Pleuronectes ferruginea</i>)	S	S			
windowpane flounder (<i>Scophthalmus aquosus</i>)	S	S	S	S	S
Atlantic halibut (<i>Hippoglossus hippoglossus</i>)	S	S	S	S	S
Atlantic sea scallop (<i>Placopecten magellanicus</i>)			S	S	
Atlantic sea herring (<i>Clupea harengus</i>)		M,S	M,S		
bluefish (<i>Pomatomus saltatrix</i>)			M,S	M,S	
long finned squid (<i>Loligo pealei</i>)	n/a	n/a			
short finned squid (<i>Illex illecebrosus</i>)	n/a	n/a			
Atlantic mackerel (<i>Scomber scombrus</i>)	M,S	M,S			
surf clam (<i>Spisula solidissima</i>)	n/a	n/a			
ocean quahog (<i>Artica islandica</i>)	n/a	n/a			
spiny dogfish (<i>Squalus acanthias</i>)	n/a	n/a			

* The notation “n/a” in the table indicates some of the species either have not data available on the designated lifestages or those lifestages are not present in the species’ reproductive cycle.